

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 59649WO003	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2005/003283	International filing date (<i>day/month/year</i>) 03 February 2005 (03.02.2005)	Priority date (<i>day/month/year</i>) 18 March 2004 (18.03.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant 3M INNOVATIVE PROPERTIES COMPANY		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 20 September 2006 (20.09.2006) Authorized officer <p style="text-align: center; font-weight: bold;">Simin Baharlou</p> e-mail: pt09@wipo.int
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 22 JUN 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2005/003283

International filing date (day/month/year)
03.02.2005

Priority date (day/month/year)
18.03.2004

International Patent Classification (IPC) or both national classification and IPC
H04Q1/14, H04M3/22

Applicant
3M INNOVATIVE PROPERTIES COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Domingos, L

Telephone No. +49 89 2399-7802



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2005/003283

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2005/003283

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: WO 03/079599

D2: WO 01/45452

D3: WO 03/065699

D4: PARKER W H: "Electromagnetic interference: a tutorial" AEROSPACE APPLICATIONS CONFERENCE, 1996. PROCEEDINGS., 1996 IEEE ASPEN, CO, USA 3-10 FEB. 1996, NEW YORK, NY, USA, IEEE, US, vol. 3, 3 February 1996 (1996-02-03), pages 177-186, XP010159068 ISBN: 0-7803-3196-6

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document) a circuit for providing test access to at least two telecommunication lines, comprising a bus from which several branches extend, each branch being provided with a switch that in a first state connects the branch with the bus and in a second state disconnects the bus from the branch (fig.10 and page 25, line 10 to page 26, line 16).

The subject-matter of claim 1 differs from the above disclosed content in that, in a second state, each switch connects its corresponding branch with ground.

The objective technical problem to be solved by this difference is the deterioration of the measurements performed on the tested branch caused by electromagnetic interference, EMI, emitted by non-used branches.

However, the problem that originally triggered the above referred modification was the detection of an insufficient accuracy of the performed measurements on a

particular branch under test. Since this problem arises when the device disclosed by document D1 is put into practice for the purpose of testing lines for the use of xDSL technology, the skilled person would be forced to react to the problem by seeking its origin and a corresponding solution.

In attempting to do so, the skilled person would unavoidably recall the general common knowledge in circuit design which would make him aware of the existence of EMI between closely positioned wires (see for example document D4, in particular, the chapters "*Radiated Coupling Paths*" and "*Cable-to-Cable Crosstalk*" in pages 181 and 182) and would arrive at the above stated objective technical problem in the course of the normal problem solving procedure and without involving any technical contribution to the art.

Ordinarily, the mitigation of EMI between closely positioned wires requires some degree of sophistication because the emitters and the receptors are simultaneously in use. However, in the case of the present application, only one branch is tested at a given time. Therefore, the problem facing the skilled person is how to reduce the EMI emitted by non-used wires on a tested wire.

Considering the general common knowledge in circuit design, to ground a source of EMI is a trivial solution well in reach of the skilled person as it corresponds to one of a commonly known number of remedies against EMI (see also document D4, especially page 184).

Given the above, the solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT).

Since documents D2 and D3 disclose circuits comprising the same features comprised by document D1, a similar reasoning to the above based on the disclosures of D2 and D3 would lead to the same inventive step objection.

2. The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent method claims 7 and 13, which therefore are also

considered not inventive (Article 33(3) PCT).

3. Dependent claims 2 to 6, 8 to 12 and 14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see documents D1 to D4 and the corresponding passages cited in the search report.

Re Item VII.

- a. According to the requirements of Rule 11.13 (m) PCT the same feature shall be denoted by the same reference sign throughout the application. This was not the case in page 10 of the description where sign 24 was assigned to the **centre secondary branch**, where as in claim 2 and in figure 1 the same sign was assigned to a **switch**.
- b. Any independent claim should have been in the two-part form in accordance with Rule 6.3(b) PCT with those features known in combination from document WO-03-079-599, which appears to represent the closest prior art, being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- c. Reference sign (16) should have been added to claims 6 and 14 in accordance with Rule 6.2(b) PCT.
- d. Following error should have been corrected:
in claim 3 "and least one switch" should be replaced by "and **at least one switch**".

Re Item VIII.

- a. The formulation of claim 1 fails to provide the reader, when departing from the strict literal meaning of its wording, with a comprehensible view of the circuit which is the

object of the invention, thus not complying to Article 6 PCT.

More precisely, in order to carry out the invention, the skilled person would need to know the relative position of the circuit towards the telecommunication lines to be monitored/tested and to the test/monitoring device.

Following formulation would have overcome above raised objection:

A circuit (10,30) for providing test and/or monitoring access to at least two telecommunication lines (18), comprising at least one bus (12) **for connecting to a test and/or measuring device (16)** and at least two primary branches (14) extending from said bus (12) **for connecting to said telecommunication lines (18), each** of the primary branches (14) being provided ...

- b. Additionally, it is clear from the description (page 4, lines 1 to 10) that the objective problem to be solved by the present invention is the reduction of the parasitic capacitance induced in the bus by the open end wires of the primary branches. Since claim 1 also comprises circuits where only one of the primary branches has a switch for connecting it with ground, it wouldn't solve the above stated problem when the selected line was connected to the primary branch comprising the switch.

Thus, claim 1 does not meet the requirement following from Article 6 PCT taken in combination with Rule 13.4 PCT that any independent claim must contain all the technical features essential to the definition of the invention.

From the description and drawings, it is clear that the object of the invention is a circuit (10,30) for providing test and/or monitoring access to at least two telecommunication lines (18) where each of the primary branches (14) is provided with at least one switch (26,34).

- c. Independent method claim 7 does not comply to Article 6 PCT with respect to clarity. The expression "the method **involving** a circuit" leaves the reader in doubt whether the subject-matter for which protection is sought is the method or the apparatus

where the method is applied (please refer to the guidelines part II 5.12).

Following formulation would have overcome above referred deficiencies: "a method of providing test and/or monitoring access to a telecommunication line, **for** a circuit comprising ...".

- d. The expression "circuit for providing test and/or monitoring access" in claim 13 is unclear (Article 6 PCT) as it leaves the reader in doubt of the device to which access is provided.

The above referred objection would have been overcome with the following formulation:

"circuit for providing test and/or monitoring access **to telecommunication lines**".

- e. Claim 9 refers to the feature "at least one switch" as if it were present in at least one of the claims from which claim 9 depends. Since this feature is not present neither in claim 7, nor in claim 8, its reference in claim 9 constitutes a false reference and therefore, renders the subject-matter of claim 9 unclear (Article 6 PCT).
- f. Method claims 10 to 12 were drafted as dependent from any of claims 6 to 9. Since claim 6 is an apparatus claim, method claims 10 to 12 were drafted as dependent from an apparatus claim, thus rendering the scope of protection sought for claims 10 to 12 unclear (Article 6 PCT).